Mallory-Weiss Syndrome Caused by Iodine-131 Therapy for Metastatic Thyroid Carcinoma

TO THE EDITOR: Mallory-Weiss syndrome is associated with retching or vomiting due to not only alcoholic consumption, but also to other causes such as travel sickness, uremia and migraine (*1*). Some patients may exhibit the syndrome without severe retching or vomiting. Radiation sickness resulting in nausea and vomiting is frequently observed in the patients receiving a therapeutic dose of ^{131}I for differentiated thyroid cancer, although it is usually mild (*2*).

A 68-yr-old man had undergone total thyroidectomy in April 1994 because of papillary adenocarcinoma of the thyroid at the first hospital. Pelvic bone metastases were found and treated with transarterial embolization (TAE). He had been suffering from back pain and paresis of the legs since December 1995, and 1.85 MBq (50 mCi) ^{131}I was administered twice until April 1996. He received 7.4 GBq (200 mCi) ^{131}I in July 1996. To prevent radiation sickness, 125 mg of methylprednisolone was given daily for 3 days, resulting in only minor nausea without vomiting. The scintigraphic images of ^{131}I indicated metastases in the lungs, neck, mediastinum, lumbar spine and pelvis. He received an additional 7.4 GBq ^{131}I in March 1997 with an infusion of methylprednisolone. There was no retching or significant nausea. Five days later, hematemesis of 200–300 ml and tarry stool were observed. Red blood cell count, hemoglobin and hematocrit fell to 1,640,000/μl, 5.4 g/dl and 16.2%, respectively. Emergency endoscopy revealed active bleeding from a longitudinal tear at the gastroesophageal junction: 10,000 units of thrombin was applied to the tear. Peptic ulcers were also found in pyrolus and antrum. Five units of packed red blood cells and 4 units of fresh frozen plasma were transfused for 2 days. A follow-up endoscopy performed 2 days later revealed that the bleeding from the tear was resolved.

The present patient had only mild nausea related to the radiation sickness, but showed massive hematemesis caused by a tear at the gastroesophageal junction. Tarry stool found on the same day as hematemesis indicated that the bleeding started a few days before.

The syndrome occurs as a complication of chemotherapy (*3–5*) and could coexist with hiatus hernia, gastritis and peptic ulcer (*1*). In the present case, gastric ulcers were found in pyrolus and antrum. Ulcers had been previously found by an endoscopic study in June 1996, but were not reported.

Therapeutic radiopharmaceuticicals, other than ^{131}I as sodium iodide, such as radiolabeled monoclonal antibodies are now used. This case should alert physicians to this rare complication.

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Written Instructions for the Release of Patients Administered Radiopharmaceuticals

TO THE EDITOR: The U.S. Nuclear Regulatory Commission (NRC) recently amended its regulations regarding the criteria for the release of patients who have received radiopharmaceuticals or permanent implants (*1*). One of the criteria is to provide the released patient with written instructions when the total effective dose equivalent to any exposed individual could exceed 1 mSv (100 mrem) (*1*). The main intent of the written instructions is to inform the patient, upon release, how to maintain radiation dose exposure to other individuals as low as reasonably achievable (ALARA). According to the NRC Regulatory Guide 8.39 (*2*), one of the required items in the written instructions is the length of time that the patient should follow each precaution upon release.

A pamphlet titled, "Guidelines for Patients Receiving Radioiodine Treatment" was prepared by the Society of Nuclear Medicine (SNM) and the NRC, jointly, and was initially published in 1983, and republished in 1987 and 1991 (*3*). The main purpose of this pamphlet was to provide special ALARA guidelines for the patient to follow when going home after a radioiodine treatment. A checklist of important precautions was included at the back of the pamphlet, in which the physician could select specific guidelines, that were important for each patient to follow and then to determine the length of time the patient should follow these precautions (*3*). Although the pamphlet was written specifically for patients treated with radioiodine, the NRC accepted it as an alternative method for meeting the requirements for written instructions for patients, upon release, after administration of radiopharmaceuticals, as long as the length of time for each precaution was listed and the specified times were appropriate for the radiopharmaceutical activity administered and the medical condition of the patient (*2*).

Recently, the SNM published a new pamphlet of general guidelines for radioiodine patients (*4*). The 1997 version of the pamphlet has the same title and basically retains the same information as the previous versions (*3,4*). However, in the new pamphlet, the last section containing the checklist and blanks for the physician to fill in the length of time for the patient to follow each specific precaution has been removed (*3,4*). Consequently, in order to comply with the NRC requirements, the physician must hand write the proper ALARA patient guidelines to be followed and the length of time that they must be followed. To prevent the physician from having to hand write each specific guideline, the SNM should include a checklist of guidelines in the pamphlet, similar to that published in the previous versions of the pamphlet.

There is another interesting change noted in the new version of the pamphlet. Although the previous versions of the pamphlet included a statement regarding the joint authorship by the SNM and the NRC (*3*), the new pamphlet does not contain such a statement (*4*).

It would be of mutual benefit to the SNM and the nuclear medicine community if the SNM would publish a new pamphlet that includes the general written instructions for patients who are administered radiopharmaceuticals. As suggested by the Regulatory Guide 8.39 (*2*), the content of the instructions should include:

1. The name of a knowledgeable person to contact and that person's telephone number in case the patient has any questions.
2. The need for maintaining distance from other persons, including separate sleeping arrangements.
3. The need for minimizing time in spent in public places (e.g., public transportation, grocery stores, shopping centers, theaters, restaurants, sporting events).

4. Precautions to reduce the spread of radioactive contamination.
5. The length of time each of the precautions should be in effect.

This new pamphlet should also include additional instructions for patients who are breast-feeding. According to the NRC regulation, the instructions should also include recommendations on whether to interrupt or to discontinue breast-feeding (*1*). If interruption of breast-feeding is necessary, the pamphlet should have a blank for the physician to fill in the recommended duration for interrupting breast-feeding (*2*). The new pamphlet should also provide clear information concerning the consequences of any failure to follow the recommended instructions to interrupt or discontinue breast-feeding.

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